Q: What is measles?
A: Measles is an acute viral disease characterized by fever, cough, nasal discharge, bilateral conjunctivitis, and a striking erythematous macular and papular rash. Measles also presents with a pathognomonic enanthem, Koplik spots. Clinically, measles is distinguished from other febrile respiratory virus illnesses by severity, rash, conjunctivitis, their substantial nasal discharge, cough and the degree of fever. Patients with measles tend to be ill-appearing, coughing, have an abundant nasal discharge, have bilateral conjunctivitis, and a rash that begins on the face and neck, and proceeds down the trunk and arms.

Q: How infectious is measles?
A: Measles is one of the most infectious of infectious diseases. Household attack rates in susceptible family members approach 100 percent. The incubation period for measles is generally 8-12 days. In the family studies, the average interval between appearance of rash in the index case and subsequent cases is 14 days, with a range of 7-21 days. Patients are infectious for an interval beginning four days before onset of rash until four days after appearance of rash. Thus, a substantial proportion of patients who develop measles were exposed to case patients who were not yet symptomatic.

Q: What are the complications of measles?
A: Complications of measles include otitis media, bronchopneumonia, laryngotracheobronchitis (croup) and diarrhea. Measles-related bacterial pneumonia carries a substantial mortality and warrants immediate infectious diseases consultation. Acute encephalitis, which frequently results in permanent brain damage, occurs in approximately one per 1,000 cases. Immunocompromised children who are exposed to measles are at high-risk of measles-related mortality.

Q: What diseases can look like measles?
A: Diseases that most frequently mimic measles include Kawasaki disease, enteroviral infection, Epstein-Barr virus infection and adenovirus infection.

Q: Why have there been more measles cases in the United States in recent years?
A: In 2008, 2011, 2013 and 2014, there were more reported measles cases compared with previous years. CDC experts attribute this to two factors. First, in recent years, there have been more measles cases than usual in some countries to which Americans travel frequently (such as England, France, Germany, India, the Philippines and Vietnam). As a consequence, more travelers with measles cases come into the U.S. Second, because there are pockets of unimmunized people in the U.S., there is more spreading of measles.

Q: How common was measles in the United States before the vaccine?
A: Before large-scale measles vaccination began in 1963, it is estimated that three to four million Americans (mostly children) got measles each year in the United States. Of those people, 4,000 developed encephalitis (brain swelling); 48,000 were hospitalized; 400 to 500 died and many others were left severely disabled from encephalitis and other complications.
Q: Aren’t most people immunized against measles?
A: Yes. Approximately 90 percent of Americans who should be immunized against measles have been immunized. However, measles is so infectious, that when the measles immunization rate drops below 90 percent, sustained transmission can occur.

Q: How is measles vaccine given?
A: In the United States, measles vaccine is available only in combination with other vaccines, as either the MMR (measles/mumps/rubella) or as MMRV (measles/mumps/rubella/varicella).

Q: How effective is the measles vaccine?
A: The measles vaccine is very effective. One dose of measles vaccine is about 93 percent effective at preventing measles, and two doses are about 97 percent effective.

Q: Who of our patients might not be vaccinated against measles?
A: The first dose of measles vaccine is given routinely beginning at age 12 months. Therefore, children under age 12 months are the largest group of unvaccinated (and at-risk) people. A second dose of measles vaccine is given routinely at ages 4-5 years. Some older children with immune problems may be unvaccinated, or may not have responded to measles vaccine. Children visiting or who have emigrated from other countries may not be immunized. Finally, some parents refuse to have their children immunized. This nonimmunizing group is at high risk of measles, because nonimmunizing families tend to congregate with other nonimmunizing families.

Q: Could I still get measles if I am fully vaccinated?
A: Very few people — about three percent — who get two doses of measles vaccine will still get measles if exposed to the virus. Why some people remain susceptible to measles after vaccination is not known. Fortunately, when immunized people get measles, they typically have a mild case.

Q: What are the vaccine coverage levels like in the United States?
A: In 2013, the overall national coverage for MMR vaccine among children aged 19-35 months was 91.9 percent. However, MMR vaccine coverage levels continue to vary by state. For example, in 10 states, 95 percent of the children aged 19-35 months in 2013 had received at least one dose of MMR vaccine, while in 17 other states, less than 90 percent of these children were vaccinated against measles. At the county or lower levels, vaccine coverage rates may vary considerably. Pockets of unvaccinated people can exist in states with high vaccination coverage, underscoring considerable measles susceptibility at some local levels.

Q: Does the measles vaccine cause autism?
A: No. This issue has been studied time and time again. Scientists found that Andrew Wakefield, the investigator who asserted that measles vaccine causes autism, falsified data. Wakefield has been discredited, and his license to practice medicine was taken away. Subsequent large studies by many organizations have found no association between MMR vaccine and autism.

Q: Where can I send families for information?
A: Reliable and up-to-date measles and measles vaccine information can be found at www.kidshealth.org. The Centers for Disease Control and Prevention (www.cdc.gov) and the Immunization Action Coalition (www.immunize.org) also have excellent sites.